



The  
Patent  
Office



INVESTOR IN PEOPLE

The Patent Office  
Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

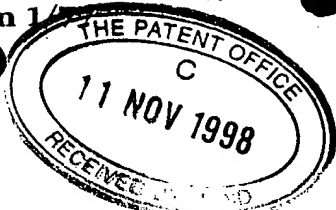
Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Signed

Dated

12 NOV 1999

**THIS PAGE BLANK (USPTO)**



The  
Patent  
Office

12NOV98 E404133-7 D02073  
P01/7700 0.00 - 9824764.6

## Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road  
Newport  
Gwent NP9 1RH

1. Your reference

8184

2. Patent application number

(The Patent Office will fill in this part)

**9824764.6**

**11 NOV 1998**

3. Full name, address and postcode of the or of each applicant (underline all surnames)

NCR INTERNATIONAL, INC.  
1700 SOUTH PATTERSON BOULEVARD  
DAYTON, OHIO 45479  
UNITED STATES OF AMERICA

Patents ADP number (if you know it)

**7409352001**

If the applicant is a corporate body, give the country/state of its incorporation

INCORPORATED IN THE STATE OF DELAWARE

4. Title of the invention

DIGITAL DATA INTERCHANGE DEVICES AND NETWORKS

5. Name of your agent (if you have one)

VIVIEN IRISH

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

INTERNATIONAL IP DEPARTMENT  
NCR LIMITED  
206 MARYLEBONE ROAD  
LONDON NW1 6LY

Patents ADP number (if you know it)

**1982003**

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)

Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

YES

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))

# Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form.  
Do not count copies of the same document

Continuation sheets of this form

Description

6

Claim(s)

2

Abstract

1

Drawing(s)

2

1-2

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination and search (*Patents Form 9/77*)

Request for substantive examination (*Patents Form 10/77*)

Any other documents  
(please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature *V. Irish*

Date 10/11/98

12. Name and daytime telephone number of person to contact in the United Kingdom

VIVIEN IRISH

TEL: 0171-725 8390

## Warning

*After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.*

## Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.*
- Write your answers in capital letters using black ink or you may type them.*
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.*
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.*
- Once you have filled in the form you must remember to sign and date it.*
- For details of the fee and ways to pay please contact the Patent Office.*

## DIGITAL DATA INTERCHANGE DEVICES AND NETWORKS

This invention relates to digital data interchange devices and has particular application in self-service terminals (SSTs) and networks.

Banking self-service terminals, that is Automatic Teller Machines (ATMs), are now well-established and widely spread. Not only are they available inside and outside banking premises but they are also provided at remote locations. The ATMs of a bank are connected into a digital data network with reliable and secure communication links between each terminal of the network and a central host device and server. Many different banking networks are inter-connected with each other to allow transfer of data among them and increase the number of terminals available to customers of the different banks.

Other SSTs are known which, instead of cash, deliver tickets or vouchers or information to a user, often in return for payment by use of a magnetic stripe card or a smart card. Such SSTs may also be linked by a digital data network.

An ATM may be regarded as a special type of SST.

Recently various kinds of portable digital device, known as Personal Data Assistants (PDAs) have become widely used. Examples of PDAs are laptop and palmtop computers (e.g. the Psion and Palmpilot hand-held computer). Other portable digital devices, for example digital cameras and

mobile telephones are also widely used. Users of such devices may wish to upload data held in them to another location or download data of a particular class, e.g. their e-mail, into them.

It is an object of the invention to facilitate such interchange of digital data.

According to the invention in one aspect a digital data interchange device includes a digital data port adapted for the interchange of digital data between the port and a portable digital device having a corresponding matching port and presented by such customer and digital data transfer means between the port and a digital data network.

The port may be a wireless port and may be adapted to receive data and transmit data on a wireless carrier signal, such as an infra red signal. Alternatively the port may have an externally accessible physical connector.

In one embodiment the digital data interchange device is associated with a self-service terminal (SST). In an alternative embodiment the SST is an ATM.

According to the invention in another aspect a self-service terminal network comprises a plurality of SSTs or ATMs as described above, a digital server and communication links between the SSTs or ATMs and the server.

The communication links may be dedicated links so as to enhance the reliability and security of the data interchange operation. To enhance the universality of the

network further communication links may be provided for transferring data between the network and a like external network. In addition means may be provided for connecting the network to the Internet or to a non-Internet database.

In order that the invention may be more fully understood reference will now be made to the accompanying drawings in which:

Fig. 1 is a block diagram of an ATM network embodying the invention; and

Fig. 2 is a block diagram of a SST network embodying the invention;

Referring now to Fig. 1 there is shown therein an ATM 10 having a processor (not shown) and all the usual facilities and peripheral devices that such a terminal provides, for example an input device such as a keyboard 11 and additional function keys, a display 12, a card reader having a card receiving slot 19, and a printer having a print delivery slot 20, and a cash dispenser having a dispense slot 21. The nature and operation of these peripheral devices are well-known in themselves and need not be described in detail. Terminal 10 is linked through reliable and secure communications links 13 to a host device or server 14. Communication links 13 may be dedicated links or may be provided by the Internet or World Wide Web (WWW). Host 14 receives information over communications links 13 from a customer's card which has been inserted into the card reader through card receiving

slot 19 and from data entered by a customer at the keyboard 11 of terminal 10 and controls the dispensing of cash from dispense slot 21.

Fig. 2 shows an SST 1, which is not an ATM, having a processor (not shown) a display 2, a card input slot 9 and a print delivery slot 22. The SST also has an input device such as a keyboard (not shown).

The ATM 10 and the SST 1 both have in addition an infra-red port 15. This port enables digital data to be interchanged between a portable electronic digital device such as a Personal Data Assistant (PDA) 16 or digital camera 17 having a matching infra-red port and which is presented to ATM 10 or SST 1 and positioned within operating distance of port 5. Examples of PDAs are laptop and palmtop personal computers. Many PDAs and digital cameras are already provided with infra-red communication ports or can have them incorporated without difficulty, as can other portable electronic digital devices such as mobile phones. With the increased use of PDAs as well as other portable electronic digital devices which incorporate digital data memory there is an increasing requirement to download and upload digital data to and from such devices.

SST and ATM networks exist throughout the world and many of them are interlinked with each other. Thus such networks, with their reliable and secure communication links, provide an opportunity to send and retrieve digital data to and from any location where there is SST 1 or ATM



10. If now SST or ATM network is coupled to the Internet, either through server 14, or in any other way, then interchange of digital data can take place worldwide between any PDA coupled to port 15 and any Internet or WWW address.

Some possible uses for such a facility are described below, with reference to Fig. 2.

A customer is at a remote location, for example at a holiday resort or at a business conference. He has a digital camera 17 and wishes to upload digital images it contains in its memory, perhaps because the memory is full or nearly so. He takes camera 17 to the nearest SST 1 having a suitable port 15 and initiates a data transfer session to the SST network where it reaches server 14. The transferred data can then be downloaded from server 14 through the Internet to another server specified by the customer and thence to his home computer 18. Camera 17 now has free memory space and is available to take more pictures. A similar transfer can be initiated from a customer's PDA 16 or mobile phone.

Alternatively or in addition to uploading data from PDA 16 it is possible to use port 15 to download information to PDA 16. PDA 16 is prior loaded with a customer's requests for digital information. Such requests can for example be for the customer's e-mail or voice mail or for information relating to lodging, entertainment or dining at a specific location. PDA 16 is then taken to a

nearby SST 1 and a digital interchange session is initiated between the customer's PDA 16 and SST 1. The requests are uploaded and transferred to a predetermined Internet address and the sought for information is then downloaded through the Internet and the SST network to SST 1 and thence through port 15 to the customer's PDA 16.

Returning now to Fig. 1, all the above-described facilities are available on an ATM network.

In addition, information originating within the banking network itself, for example financial information either of a general nature (e.g. stockmarket information) or of a personal nature (e.g. the customer's bank balance) can also be downloaded to the customer's PDA 16 in this manner. The information can then be held and reconciled locally on the PDA, or transferred to another DDI - enabled machine (for example a home PC) for storage and reconciliation.

Instead of, or in addition to, infra-red port 15, a port operating with a wireless carrier on another waveband, or else a plug-in port with an externally accessible physical connector, can equally well be used.

While the above description has been in connection with use by a customer, the invention is also applicable to use by service personnel and field engineers of the SST network who can upload diagnostic data through port 5 or else through a similar second port to which access is limited to authorised personnel.

CLAIMS:

1. A digital data interchange device including a digital data port (15) adapted for the interchange of digital data between the port (15) and a portable digital device (16,17) having a corresponding matching port and presented by such customer and digital data transfer means between the port and a digital data network.
2. The device as claimed in Claim 1 in which the port is a wireless port.
3. The device as claimed in Claim 1 or Claim 2 in which the port (15) is adapted to receive data and transmit data on an infra-red carrier signal.
4. The device as claimed in Claim 1 in which the port has an externally accessible physical connector.
5. A self-service terminal (1 or 10) comprising a processor, and input device (11), a display (2 or 12) and a delivery means (20 or 22) characterized by a digital data interchange device according to any preceding claim.
6. A self-service terminal according to claim 5 further comprising cash dispense means (21).
7. A self-service terminal network comprising a plurality of self-services terminals (1 or 10) as claimed in Claim 5 or claim 6, a digital server (4) and communication links (3) between the devices (1) and the server (4).
8. The network as claimed in Claim 7 in which the communication links are dedicated links.

9. The network as claimed in Claim 7 or Claim 8 and including further communication links for transferring data between the network and a like external network.

10. The network as claimed in any one of Claims 7 to 9 and including means for connecting the network to the Internet.

## DIGITAL DATA INTERCHANGE DEVICES AND NETWORKS

Abstract

A banking self-service terminal (1) forming part of a SST network is provided with an infra-red port (5) enabling digital data interchange to take place between a portable electronic digital device having a corresponding matching port which is presented to the SST (1) and the SST (1). The portable device may be any device having an electronic digital data memory. Examples are PDAs (6) such as laptop and palmtop computers, digital cameras (7) and mobile phones. The SST network is connected to the Internet thus enabling data interchange to take place between the portable device (6 or 7) and any Internet address. Thus the terminal can be used to interchange data between a customer's PDA (6) and his home computer (8).

**THIS PAGE BLANK (USPTO)**

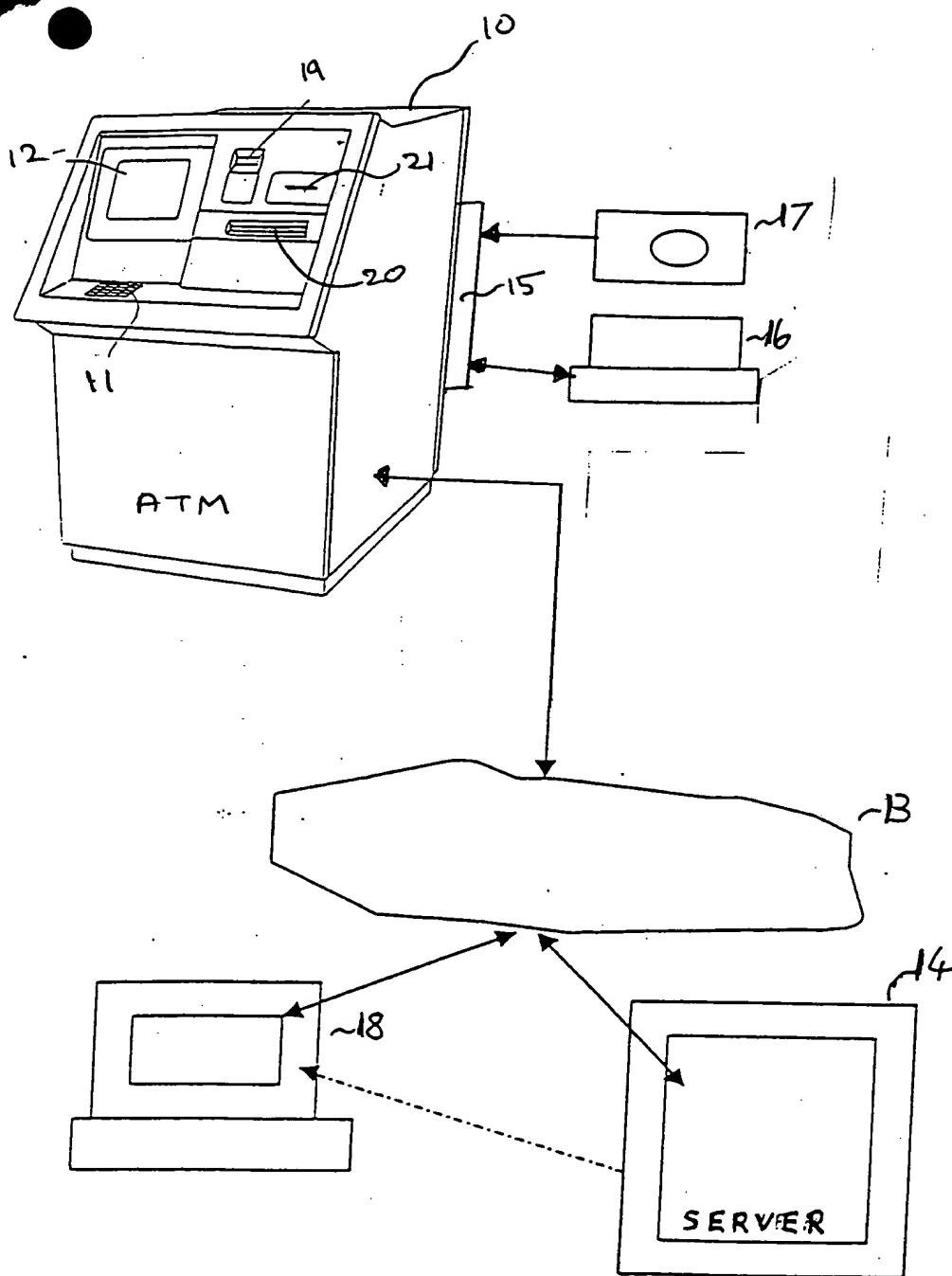


FIG. 1

**THIS PAGE BLANK (USPTO)**



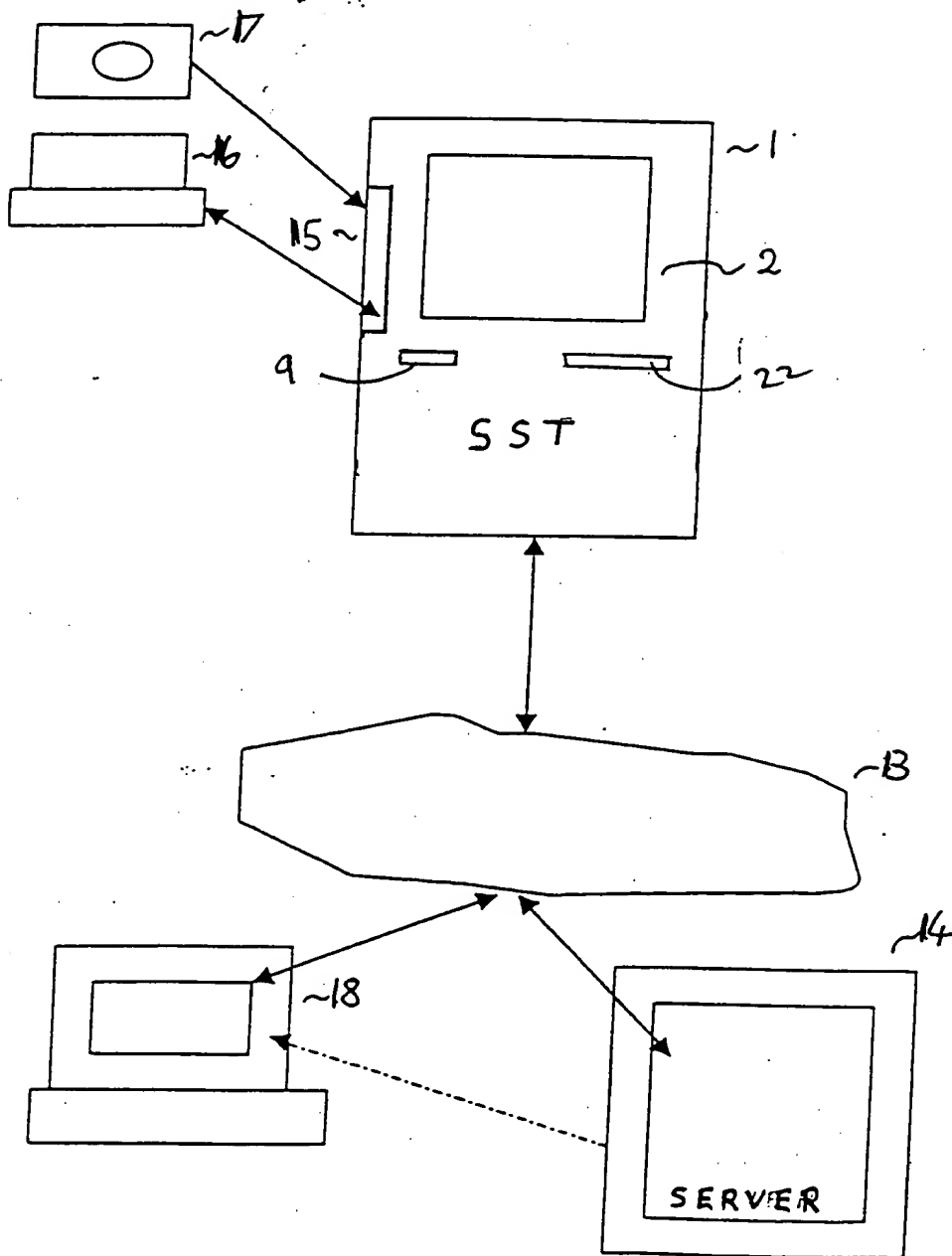


FIG. 2

**THIS PAGE BLANK (USPTO)**